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B112/B108

AUTHOR: Sinay, Ya. G.

TITLE: Dynamical systems with a countably multiple Lebesgue spectrum. I

PERIODICAL: Akadimiya nauk SSSR. Izvestiya seriya Matematicheskaya, v. 25, no. 6, 1961, 899 - 924

TEXT: The author shows that certain geometric properties of the motion of a dynamical system imply a countably multiple Lebesgue spectrum of the system, similarly to the case of a discrete spectrum. The method used is based on the concepts of K-automorphism and K-flow. K-automorphisms have been studied by V. A. Rokhlin (Izvestiya Ak. nauk SSSR, seriya matem., 25 (1961), 499 - 530). The author adopted some of Rokhlin's results for a dynamical system with continuous time. A measurable flow  $\{S_t\}$  which is

given in a Lebesgue space  $M$  is said to be a K-flow if there exists a measurable partition  $\xi^0$  of  $M$  with the following properties:

I.  $S_t \xi^0 = \xi^t > \xi^{t_1} \text{ mod } 0$  for  $t > t_1$ . II.  $\prod_{t=0}^{\infty} \xi^t = \xi \text{ mod } 0$ . III.  $\tilde{\bigwedge} \xi^t = \gamma \text{ mod } 0$ .  
Card  $\frac{1}{2}$

Dynamical systems with a ...

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...  $\xi$  is an arbitrary measurable partition of  $M$ ,  $\mathcal{E}$  is the partition of  $M$  into its single points, and  $\nu$  is the trivial partition  $\{M\}$ . A measurable flow  $\{S_t\}$  is a group of automorphisms of  $M$  depending on one parameter  $t$  and satisfying the following condition: For each measurable subset  $A \subset M$ , the set of all pairs  $(x, t)$  with  $S_t x \in A$  is measurable in  $M \times \mathbb{R}$ . Conditions for the existence of a countably multiple Lebesgue component in the spectrum of a special flow are derived. General properties of a K-flow and of its spectrum are studied. Kolmogorov A. N. (Doklady Ak. nauk SSSR, 119, No. 5 (1958), 861 - 865.), Plesner A. I. (Doklady Ak. nauk SSSR, 23, No. 4 (1939), 327 - 330., 25, No. 9 (1939), 708 - 710.), and Gel'fand I. M. and Fomin S. V. (Uspekhi matem. nauk, 7, no. 1 (1952), 118 - 137.) are referred to. There are 24 references: 19 Soviet and 5 non-Soviet. The two most recent references to English-language publications read as follows: Ambrose W. and Kakutani S., Structure and continuity of measurable flows, Duke Math. J., 9, No. 1 (1942), 25 - 42; Halmos P., On automorphisms of compact groups, Bull. Amer. Math. Soc., 49, No. 8 (1943), 619 - 624.

SUBMITTED: April 25, 1960  
Card 2/2

MESHAIFIN, L.D. (Moskva); SINAY, Ya.G. (Moskva)

Stability of the stationary solution to a system of equations of the  
laminar flow of an incompressible viscous liquid. Prikl. mat. i  
mekh. 25 no.6:1140-1143 N-D '61. (MIRA 14:12)  
(Laminar flow) (Differential equations, Partial)



ROKHLIN, V.A.; SINAY, Ya.G.

Construction and properties of invariant measurable divisions.  
Dokl. AN SSSR 141 no.5:1038-1041 D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
Predstavleno akademikom A.N. Kolmogorovym.  
(Transformations (Mathematics))  
(Differential invariants)

SINAY, Ya. G.

"Application of some probabilistic ideas to ergodic theory  
and to classical dynamical systems"  
To be presented at the IMU International Congress of  
Mathematicians 1962 - Stockholm, Sweden, 15-22 Aug 62

Moscow State University

S/052/62/007/002/004/005  
C111/C222

AUTHOR: Sinay, Ya.G.

TITLE: On limit theorems for stationary processes

PERIODICAL: Teoriya veroyatnostey i yeye primeneniya, v.7, no. 2, 1962,  
213-219

TEXT: To every strictly stationary process  $\xi(t)$ ,  $-\infty < t < \infty$  there  
corresponds a system of closed  $\sigma$ -algebras  $\pi_{s_1}^{s_2}$  which are generated

by the random variables  $\xi(t)$  for  $s_1 \leq t \leq s_2$ . Assume that  $\xi(t)$  is ergodic  
and satisfies the condition :

A : To every  $\varepsilon > 0$  there exists a  $t(\varepsilon) > 0$ , an integer  $n(\varepsilon) = n$  and  
sets  $A_0, A_1, \dots, A_n$  so that

a)  $A_i \cap A_j = \emptyset$ ,  $i \neq j$ ,  $\bigcup_{i=0}^n A_i = \Omega$  ( $\Omega$  is the space of all realizations

of  $\xi(t)$ ).

b)  $A_i \in \pi_{-\infty}^0$ ,  $i = 0, 1, \dots, n$

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8)  $P(A_0) < \epsilon$ ,  $\sup |P(\Gamma_1 \cap \Gamma_2 / A_i) - P(\Gamma_1 / A_i)P(\Gamma_2 / A_i)| < \epsilon$ ,  
 $i = 1, \dots, n$ ;  $\sup$  is taken over  $\Gamma_1 \in \mathcal{M}_{-\infty}^{\infty}$  and  $\Gamma_2 \in \mathcal{M}_{t_\epsilon}^{\infty}$ . Let

$M\xi(t) = 0$  and  $D_T(\xi) = M(\bar{\xi}_T)^2$ .

$\xi(t)$  is denoted as a process with mixing, if for arbitrary measurable sets  $\Gamma_1$  and  $\Gamma_2$  and for  $t \rightarrow \infty$

$$|P(\Gamma_1 \cap \Gamma_2) - P(\Gamma_1)P(\Gamma_2)| \rightarrow 0,$$

and  $\xi'(t) = S_T \xi(t) = \xi(t - T)$ .

The following theorems are proved:

Theorem 1: If for a process with mixing  $\xi(t)$  which satisfies the condition A it holds  $D_T(\xi) \rightarrow \infty$  for  $T \rightarrow \infty$ , then there exists a function

$A(T)$  such that for the validity of the relation

$$\lim_{T \rightarrow \infty} P\left\{\bar{\xi}_T < x \sqrt{A(T)}\right\} = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x \exp(-u^2/2) du$$

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On limit theorems for...

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for every  $x$ ,  $-\infty < x < \infty$  the Linberg condition is sufficient : to every  $\epsilon > 0$  there exist constants  $N(\epsilon)$  and  $T(\epsilon)$  such that for  $T > T(\epsilon)$  it holds

$$\frac{1}{D_T(\epsilon)} \int_{|\bar{\xi}_T| > N(\epsilon) \sqrt{D_T(\epsilon)}} (\bar{\xi}_T)^2 dP < \epsilon. \quad (10)$$

Theorem 2 : If a regular process  $\xi(t)$  satisfies condition A and the Linberg condition (10), then for every  $c > 0$

$$A(cT)/A(T) \rightarrow c \quad (T \rightarrow \infty).$$

Theorem 3 : If  $\xi(t)$  obeys the central limit theorem, then

$$c = \lim_{T \rightarrow \infty} \inf \frac{D_T(\xi)}{A(T)} > 0.$$

From the theorems there follows the possibility of constructing regular stationary processes which do not satisfy condition A and a fortiori the strong mixing condition of Rosenblatt ( Ref. 1: A central limit

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On limit theorems for...

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theorem and a strong mixing condition, Proc. Nat. Acad. Sci. Wash., 42, 1 (1956), 43-47); e.g. a Gauss process, the spectral density  $f(\lambda)$  of which satisfies the relation

$$\lim_{\lambda \rightarrow 0} \frac{f(\lambda)}{|\lambda|^\gamma} = \sigma > 0, \quad 0 < \gamma < 1,$$

does not satisfy the A-condition.

Finally, the author investigates the applicability of the Poisson limit theorem.

SUBMITTED: November 19, 1960

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S/020/62/144/004/001/024  
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2600

AUTHORS: Arnol'd, V. I., and Sinay, Ya. G.

TITLE: Small disturbances of the automorphism of a torus

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 4, 1962, 695-698

TEXT: A twodimensional torus  $T^2$  is considered, represented as a unit square of the  $(x_1, x_2)$ -plane with pairwise identified sides. An automorphism  $A$  of  $T^2$  is a mapping  $x \rightarrow Ax = \bar{x}$  where  $A = \|a_{ij}\|$ ,  $\det A = \pm 1$ ,  $a_{ij}$  integral,  $\bar{x}_i = \sum_j a_{ij} x_j \pmod{1}$ ,  $i = 1, 2$ . Certain properties of  $A$  are emphasized, and the following mappings are considered:

$$x \rightarrow A_\varepsilon x = Ax + \varepsilon B(x)$$

$(B(x) = (b_1(x_1, x_2), b_2(x_1, x_2)))$ ;  $b_i$  are three times continuously differentiable functions having the period 1 with respect to  $x_1$  and  $x_2$ ;  $\varepsilon$  is a small parameter). It is shown that (1) if  $\varepsilon$  is sufficiently small,

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$A_\varepsilon$  also has the above properties; (2) an ergodic automorphism is structurally stable (that is, with sufficiently small  $\varepsilon$ ) a homeomorphism  $x \leftrightarrow y$  exists so that

$$y(A_\varepsilon x) = Ay(x).$$

Two further theorems contain generalizations for the n-dimensional case.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: January 20, 1962, by A. N. Kolmogorov, Academician

SUBMITTED: January 17, 1962

Card 2/2

ARATO, M.; KOLMOGOROV, A.N., akademik; SINAY, Ya.G.

Evaluation of the parameters of a complex stationary  
Gaussian type Markov process. Dokl. AN SSSR 146  
no.4:747-750 0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet im.  
M.V. Lomonosova. (Markov processes)

SINAY, Ya. G.

Weak isomorphism of transformations having an invariant  
measure. Dokl. AN SSSR 147 no.4:797-800 D '62.  
(MIRA 16:1)

1. Predstavleno akademikom A. N. Kolmogorovym.

(Transformations(Mathematics)) (Invariants)

SINAY, Ya.G., (Moskva)

Spectral measures of higher orders of ergodic stationary processes.  
Teor. veroiat. i ee prim. 8 no.4:463-470 '63. (MIRA 17:1)

ARNOL'D, V.I.; KIRILLOV, A.A.; SINAY, Ya.G.

Dynamic systems and representations of groups at the Stockholm  
Mathematical Congress. Usp. mat. nauk 18 no.2:189-196 Mr-Ap  
'63. (MIRA 16:8)

(Mathematics--Congresses)



SINAY, Ya.G.

A "physical" system with positive "entropy." Vest. Mosk. un. Ser.1:  
Mat., mekh. 18 no.5:6-12 S-O '63. (MIRA 16:10)

1. Moskovskiy gosudarstvennyy universitet, kafedra teorii veroyatnostey.

SINAY, Ya.G.

Some remarks on the spectral properties of ergodic dynamic systems.  
(MIRA 16:12)  
Usp. mat. nauk 18 no.5:41-54 5-0 '63.

SINAY, Ya.G.

Substantiation of the ergodic theory for a dynamic system  
in statistical mechanics. Dokl. AN SSSR 153 no.6:1261-1264  
D '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
Predstavleno akademikom A.N. Kolmogorovym.

SINAY, Ya.G. (Moskva)

Weak isomorphism of transformations with an invariant measure.  
Mat. sbor. 63 no.1:23-42 Ja '64. (MIRA 17:3)

AUTHOR BAYUKOV, YU. D., SINAYEV A.N., TYAPKIN A.A. PA - 2699  
 TITLE Experimental Comparison of the Energy Spectra of  $\gamma$ -Quanta  
 resulting from the Decay of Neutral Pions (which were created  
 by 660 MeV-Protons on Carbon- and Lead-Nuclei).  
 (Eksperimental'-noye sravneniye energeticheskikh spektrov  
 kvantov ot raspada  $\pi^0$  - mezenov, obrazovannykh na yadrakh  
 ugleroda i svintsa protunami s energiyey 660 MeV, Russian.)  
 PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 2,  
 pp 385 - 386 (USSR).  
 Received: 5/1957 Reviewed: 6/1957  
 ABSTRACT For a more exact comparison of  $\gamma$ -quanta created on light and  
 heavy nuclei the authors carried out relative measurements of the  
 fluxes of  $\gamma$ -quanta within the various domains of the spectra  
 mentioned above.  
 The angle of observation in the direction of motion of the  
 protons amounted to  $0^\circ$ . Measurements were carried out by means  
 of a magnetic double spectrometer with 12 channels. The targets  
 consisting of lead and graphite fitted into the vacuum chamber  
 of the accelerator were exchanged every minute.  
 At low energies of  $\gamma$ -quanta ( $E_\gamma < 70$  MeV) a difference is  
 noticed on the  $\gamma$ -quanta created on carbon and lead. This dif-  
 ference is connected apparently with the modification of the  
 angular distribution of the neutral pions.

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SOV/120-58-6-4/32

AUTHORS: Bayukov, Yu. D., Kozodayev, M. S., Markov, A. A., Sinayev, A. N., Tyapkin, A. A.

TITLE: A Multichannel Pair  $\gamma$ -Spectrometer. I. Calculation of the Main Characteristics of the  $\gamma$ -Spectrometer (Mnogokanal'nyy parnyy gamma-spektrometr. I. Raschet osnovnykh kharakteristik gamma-spektrometra)

PERIODICAL: Priory i tekhnika eksperimenta, 1958, Nr 6, pp 23-29 (USSR)

ABSTRACT: In a pair  $\gamma$ -spectrometer the energy of the quanta is determined by measuring the total energy of the components of the electron-positron pair formed in a thin converter. The first 2-channel pair spectrometer was built by Dzhelepov (Ref. 2). Later spectrometers built on this principle were widely used in measuring the spectra of hard  $\gamma$ -rays (Refs. 2 to 8). The electron and the positron leaving the converter were deflected by a magnetic field in different directions and for certain values of their energy they enter ionisation counters connected in coincidence. For a given intensity of the magnetic field and a fixed position of the counters, such a spectrometer will record a fraction of the pairs produced by  $\gamma$ -rays in a given energy range. In a simple 2-channel spectrometer in which one channel records the electrons and

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A Multichannel Pair  $\gamma$ -spectrometer. I. Calculation of the Main Characteristics of the  $\gamma$ -spectrometer

the other the positrons, an increase in the accuracy of measurement is associated with a marked decrease in the efficiency. Good energy resolution and high efficiency can only be simultaneously achieved in a multichannel spectrometer. In such a spectrometer the efficiency may be increased by a factor  $n_1 n_2$  without loss of resolution, where  $n_1$  and  $n_2$  are the numbers of electron and positron counters. In such a spectrometer several energy intervals may be examined at the same time. A number of such multichannel spectrometers have been described (Refs. 5, 6 and 8). The quality of a  $\gamma$ -spectrometer as a measuring instrument is determined by its efficiency and spectral sensitivity. In designing a multichannel system it is necessary to take into account these characteristics for the various pairs of channels of the spectrum. In this connection, a discussion is given in the present paper of the dependence of the efficiency and spectral sensitivity of the separate pairs of channels on various

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A Multichannel Pair  $\gamma$ -spectrometer. I. Calculation of the Main Characteristics of the  $\gamma$ -spectrometer

parameters of the spectrometer:

1) Spectral sensitivity: the basic diagram of a  $\gamma$ -spectrometer considered in this paper is shown in Fig.1, in which the meanings of the symbols employed are indicated. In view of the finite width of the counters, the spectrometer records  $\gamma$ -quanta in a certain energy interval from  $E_{\gamma \min}$  to

$E_{\gamma \max}$ . The corresponding spectral sensitivity curve is then shown in Fig.2a and is of triangular form with a dispersion given by

$$\sigma_{1\gamma} = 1/6 \ell_c^2 / (r_1 + r_2)^2 \quad \text{where } \ell_c \text{ is the width of a}$$

counter and  $r_1$  and  $r_2$  are the distances from the converter to the centres of the counters, respectively. The effect of the width of the converter upon the spectral sensitivity is examined and it is shown that a converter of a finite width introduces a spread into the spectral line in the high energy region of  $\gamma$ -quanta. As the angle  $\varphi$  between the direction of motion of the  $\gamma$ -quanta and the

Card 3/6 straight line connecting the centre of the converter with



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# A Multichannel Pair $\gamma$ -spectrometer. I. Calculation of the Main Characteristics of the $\gamma$ -spectrometer

the counter increases, the spread of the spectral line decreases. At  $\varphi = 90^\circ$  the width of the spectral sensitivity curve is independent of the converter width. The effect of the converter width gives a distribution of the form shown in Fig.2b, which has a dispersion given by:

$$\sigma_2^2 = \frac{\lambda_k^4 \text{ctg}^4 \varphi}{180 r_1^2 \cdot r_2^2} \quad . \quad \text{The effect of multiple}$$

scattering in the converter is estimated and expressions are derived for this effect also. Finally, an estimate is given for the radiation loss experienced by the electron-positron pair on traversing the converter.  
2) Efficiency: in this section the Bethe-Heitler expression for the probability of formation of a pair by a  $\gamma$ -quantum of

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A Multichannel Pair  $\gamma$ -spectrometer. 1. Calculation of the Main Characteristics of the  $\gamma$ -spectrometer

energy  $E$  is used (Ref.13) with a modification described by Bethe  $\gamma$  et al in Ref.22.

3) Multichannel system: in a multichannel spectrometer the electrons and positrons formed by  $\gamma$ -quanta of a given energy are recorded by a number of combinations of pairs of counters. The electronic circuit of such a spectrometer should record coincidences between pulses from each electron counter with pulses from any positron counter. Thus, any combination of one electron counter and one positron counter is, in fact, a 2-channel spectrometer. For a given geometry a spectrometer containing  $n$  channels records  $\gamma$ -quanta in  $n-1$  energy intervals of different mean energy. In practice, one seeks to find the form of the spectrum and the absolute intensity in one of the energy intervals. To find the form of the spectrum it is sufficient to know the relative efficiency of recording for the different energy intervals, and this is given by Eq.(10). In order to obtain the absolute intensity in one of the energy intervals it is necessary to know the total absolute efficiency of recording of  $\gamma$ -quanta in one of the energy intervals. This problem is not treated.

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A Multichannel Pair  $\gamma$ -spectrometer. I. Calculation of the Main Characteristics of the  $\gamma$ -spectrometer

V. V. Mel'nikov is thanked for carrying out a number of calculations. There are 2 figures and 22 references, of which 4 are Soviet, 1 German, 1 Soviet translated from English and the rest are English.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy  
(United Institute for Nuclear Studies)

SUBMITTED: December 27, 1957.

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SOV/120-58-6-5/32

AUTHORS: Bayukov, Yu. D., Kozodayev, M. S., Markov, A. A. Sinayev, A. N., Tyapkin, A. A.

TITLE: A Multichannel Pair  $\gamma$ -Spectrometer. II. Description of a 12-channel Spectrometer (Mnogokanal'nyy parnyy gamma-spektrometr. II. Opisaniye dvenadtsatikanal'nogo spektrometra)

PERIODICAL: Pribery i tekhnika eksperimenta, 1958, Nr 6, pp 30-40 (USSR)

ABSTRACT: Application of a multichannel pair spectrometer in synchro-cyclotron work presents a number of specific requirements as far as counters of the ionising particles and the electronic system of the spectrometer are concerned. Since the beam intensity is high and consists of short pulses of 200 to 300  $\mu$ s each at a repetition frequency of 40 to 80 pulses per sec, it follows that the apparatus must be very fast. It is desirable that the input blocks should have resolving times not greater than 1  $\mu$ s. The large background intensity in synchro-cyclotron work means that it is always necessary to use a special selection system which records only electron-positron pairs. For this reason, in the spectrometer each component of a pair should be recorded by a number of counters in coincidence with sufficiently low resolving time. The

Card 1/7 present paper describes a 12-channel  $\gamma$ -spectrometer which has

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been used over a number of years in studying the spectra of hard  $\gamma$ -rays and neutral  $\pi$ -meson decays (Refs.2-6). The first variant of the spectrometer was built in 1949. In 1951 and 1954 the spectrometer was modified to improve its characteristics. The spectrometer described here satisfies completely the above requirements and is based on the design calculations given in the previous paper (Ref.1) in this issue.

## 1) Magnetic system and geometry of the instrument.

The magnetic field is produced by an SP-56 electromagnet. Fig.1 shows the disposition of the counters for two types of demountable pole pieces. The gap between the poles is 18 cm and the maximum field in the gap is 18 000 oersted. The electromagnet current is stabilised to 0.1%. In studies of  $\gamma$ -ray spectra in the energy region 20 to 200 MeV,  $2\phi = 180^\circ$  (Fig.1b) and in the energy region 100 to 450 MeV,  $2\phi = 90^\circ$  (Fig.1a). In the former case semi-circular focussing of

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# A Multichannel Pair $\gamma$ -Spectrometer. II. Description of a 12-channel Spectrometer

electrons and positrons was used, and this led to increased efficiency (Ref.1) because it was possible to use wider and thicker converters. For  $\gamma$ -quanta in the energy range 450-600 MeV,  $2\phi = 90^\circ$  but the counters were at a larger distance from the converter. Copper converters were used (0.1, 0.3 and 0.5 mm, depending on the energy).

## 2) Resolving power and efficiency.

Fig.2 shows curves of the total spectral sensitivity for the 7th energy interval for various values of  $E_{\gamma 0}$  and thicknesses  $T_k$  of the copper converters. These curves are based on the theoretical data given in the previous paper and are obtained by a statistical combination of the partial distributions due to a) width of the counters, b) width of the converter, c) multiple scattering and d) radiation. As can be seen, the form of the total spectral sensitivity curve is **very** nearly triangular, which means that the total spectral sensitivity is governed mainly by the width of the channels  $\ell_c$  (see Fig.1 of previous paper, p 24, this issue).

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3) Counters and selection system. The counters used were proportional counters having a cylindrical stainless steel cathode, 10 mm in diameter and a molybdenum filament 0.1 mm in diameter. They were filled with  $(CH_2(OCH_3)_2)$  at a pressure of 160 to 200 mm. The working voltage was 1600 to 2000 V. The counters have an effective dead time not exceeding  $10^{-7}$  sec. The efficiency of the counters for particles with relativistic ionisation reaches 98% in a coincidence scheme with a resolving time of  $5 \times 10^{-7}$  sec. The delay of the pulses due to drift of electrons through the counter gas is less than  $10^{-7}$ . The counters give electrical pulses with amplitudes between  $10^{-4}$  and 1 V. The large difference in the amplitudes requires the use of amplifiers having a wide dynamic range and an amplification of a few thousands. 6-fold coincidences were used and the number of random coincidences in each 6-fold channel was 0.02 pulses per sec. The number of electron-positron pairs recorded per

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sec depended on the efficiency of the spectrometer with respect to the  $\gamma$ -quanta in the measured energy interval and the form of the spectrum and was in the range 0.1 to 10 pairs per sec.

## 4) Electronic scheme.

A block diagram of the electronic part of the spectrometer is shown in Fig.3. The left-hand portion of this diagram shows 6 co-ordinate counters of the electron series ( $a_1 - a_6$ ), 6 co-ordinate counters of the positron series ( $b_1 - b_6$ ) and 4 selection counters ( $A'$ ,  $A''$ ,  $B'$  and  $B''$ ). Each of these counters in practice consists of a group of counters whose filaments are connected. A recorded electron or positron should pass through 3 counters (1 co-ordinate and 2 selection counters). A pair is recorded if a 6-fold coincidence takes place. Negative-going pulses from each counter are amplified by a corresponding amplifier-converter (Fig.4). These amplifiers have a rise time of  $2 \times 10^{-4}$  sec. Pulses from all the 16 amplifier-converters are applied to the main block which is at a distance of 1.5 m from the amplifier-converters (Fig.5). Pulses from the selection counters are applied to a

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4-fold coincidence scheme while pulses from the co-ordinate counters are applied to mixers and in addition through delay lines to a hodoscopic system consisting of 2-fold coincidence circuits and output univibrators. The pulse at the output of a mixer appears in the presence of a pulse in at least one of the co-ordinate counters of a given series. Pulses from both the mixers and also from the 4-fold coincidence scheme are applied to a 3-fold coincidence scheme which produces the final output pulse. It follows that the latter pulse appears when a 6-fold coincidence takes place, i.e. when a particle passes through at least one of the co-ordinate counters in the electron series, through one of the co-ordinate counters of the positron series, and all the counters of the selection system. The resolving time of the above coincidence schemes is  $5 \times 10^{-7}$ .

5) Method of measurement and treatment of results.

Fig.7 shows the experimental arrangement. In this figure 1 is the proton trajectory, 2 is the target, 3 is the synchrocyclotron chamber, 4 is a concrete wall, 5 is a collimator,

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6 is a diaphragm, 7 is a clearing magnet which removes electrons and positrons from the beam, 8 is an additional screen, 9 is the convertor and 10 is the spectrometer electro magnet. Fig.8 shows a typical result obtained for the energy spectrum of  $\gamma$ -quanta from neutral  $\pi$ -meson decays. The mesons were produced by 660 MeV protons at a carbon target. The spectra are measured at an angle of  $180-0^\circ$  to the direction of motion of the protons. G.P.Zorin, B.A.Krasnovidov, L. A.Fadeyev and G.N.Stepanov are thanked for their assistance. There are 8 figures, 4 tables and 7 Soviet references.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (United Institute for Nuclear Studies)

SUBMITTED: December 27, 1957.

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SINAYEV, A. N.

"Multichannel Systems used in Synchrocyclotron Experiments with High Energy Particles"

Joint Institute of Nuclear Research, Dubna, USSR

report submitted for the IAEA conf. on Nuclear Electronics, Belgrade, Yugoslavia  
15-20 May 1961

SIMAYEV, Aleksey Nikolayevich; MELECHKO, V.K., red.; VLASOVA,  
E.A., tekhn. red.

[Electronic systems of multichannel nuclear particle spectro-  
meters]Elektronnyye sistemy mnogokanal'nykh spektrometrov  
iadernykh chastits. Moskva, Gosatomizdat, 1962. 94 p.  
(MIRA 15:10)

(Spectrometer)

S/120/62/000/006/011/029  
E140/E435

AUTHOR: Sinayev, A.N.

TITLE: Utilization of the time interval between successive  
input pulses for data-regeneration in CRT memories

PERIODICAL: Priory i tekhnika, eksperimenta, no.6, 1962, 67-69

TEXT: In multi-channel pulse analysers using cathode-ray-tube memories, the time required for data regeneration can be an appreciable fraction of the total operating time. The author suggests several programs permitting this time to be interleaved with new data introduction. The various methods are distinguished by the complexity of the logical circuitry associated with the memory and the maximum rate at which new data can be accepted.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy .  
(Joint Institute of Nuclear Research)

SUBMITTED: February 7, 1962

Card 1/1

SINAYEV, A.N.

Symposium on nuclear radio electronics held by member countries  
of the United Institute of Nuclear Research. Atom.energ. 16  
no. 4:379-380 Ap '64. (MIRA 17:5)

L 6927-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-24/Pt-10 IJP(c)/RAEM(1)/SSD/  
AFWL/ASD(a)-5/ESD(dp)/ESD(c)/ESD(gs)/RAEM(t)  
ACCESSION NR: AR4039896 S/0058/64/000/004/A037/A037

SOURCE: Ref. zh. Fiz., Abs. 4A354 88

AUTHOR: Sinayev, A. N.

TITLE: Use of storage tubes in multichannel systems intended for  
synchrocyclotron research 19

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern.  
radioelektronike. T. 2. Ch. 1. M., Gosatomizdat, 1963, 87-106

TOPIC TAGS: storage tube memory, pulse analyzer, multichannel  
pulse recorder, radiation detector, synchrocyclotron

TRANSLATION: Block diagrams are presented for the following: a  
storage-tube memory unit, a distribution unit of a multidimensional  
(pulse-height and time) analyzer, and a distribution unit for a  
multichannel system. A detailed analysis of the operation of these

Card 1/2

L 6927-65

ACCESSION NR: AR4039896

circuits is presented. The storage-tube memory unit is adapted to operate in the pulsed mode (to work with the OIYaI synchrocyclotron, with pulse duration 500  $\mu$ sec and repetition frequency 100 cps). The pulses enter the memory unit immediately upon arrival, and the pause time is allotted for establishment of the information. The distribution block of the multidimensional analyzer has 256 channels (16 time channels, each containing 16 pulse-height channels). The ratio of the number of time and amplitude channels can be varied. Selection of time channels is with the aid of a time-amplitude converter. The minimum width of the time channel is 1  $\mu$ sec. The distribution block for the multichannel system is intended to register pulses from an installation having a large number of radiation detectors. Cases of time superposition of pulses from two or several detectors are not registered. N. Vishnevskiy.

SUB CODE: DP, NP

ENCL: 00

Card 2/2



L 00463-67

ACC NR: AR6033770

SOURCE CODE: UR/0058/66/000/307/A029/A029

AUTHOR: Prokof'ev, Yu. P.; Semenov, B. Yu.; Sinayev, A. N.; Frolov, N. S.

TITLE: Simple single-channel amplitude analyzer for the registration of rare events

SOURCE: Ref. zh. Fizika, Abs. 7A258

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron.  
T. 3. Ch. 1. M., Atomizdat, 1965, 158-170

TOPIC TAGS: amplitude analyzer, potentiometer, pulse analyzer, pulse  
amplitude/EPP-09 recording potentiometer

ABSTRACT: An investigation is made of an amplitude analyzer, similar to the one described in the work of Birulev et al. (RZhFiz, 1964, 2A162), where the recording EPP-09 potentiometer is used as the amplitude analyzer. When the pulse comes to the analyzer input, the carriage of the recording potentiometer travels a distance proportional to the pulse amplitude, and then returns. The dead time and the number of the analyzer channels are determined by the characteristics of the record

Card 1/2

L 09463-67

ACC NR: AR6033770

ing potentiometer. The number of channels can be brought to 127. The pulses at the analyzer input must be positive with an amplitude ranging from 0.3 to 6 v and a duration of 1 to 1.5  $\mu$  sec. The instrument works dependably in a temperature range of 0—40C. The integral nonlinearity is less than 0.5 percent. The analyzer is fed with a +8 and -8 v voltage, with a  $\sim$ 0.1-percent time and temperature instability, and weighs 0.3 kg. All the analyzer circuits are assembled on semiconductors. A description is given of the block diagram and the operation of all the parts of the instrument. The analyzer is designed for the registration of small events. [Translation of abstract]

SUB CODE: 14, 20/

Card 2/2

L 36958-65 EWT(1)/EWA(h) Feb  
ACCESSION NR: AP5007033

S/0120/65/000/001/0095/0099

AUTHOR: Sinayev, A. N.; Ts'ao, Kuo-cheng

14  
B

TITLE: General-purpose distribution unit for a two-variable analyzer

SOURCE: Priboiy i tekhnika eksperimenta, no. 1, 1965, 95-99

TOPIC TAGS: pulse analyzer, pulse analysis

ABSTRACT: Designed with conventional logic elements, flip-flop circuits, triggers, etc., the new two-variable distribution unit is intended for the simultaneous measurement of pulse-height spectra received from two detectors, pulse height-height analysis, time-height analysis, and conventional time analysis. The minimum width of the time channel is 0.2  $\mu$ sec, of the pulse-height channel, 0.5 v; dead time is 1  $\mu$ sec per channel; differential nonlinearity is 2.5%. The distribution unit is used in conjunction with a 256-channel storage-tube analyzer for experiments on the OIYaI synchrocyclotron and also for experiments with a continuous radiation source. A block diagram of the distribution unit is presented and briefly described. Orig. art. has: 2 figures. [03]

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Nuclear Research Institute)

Card 1/ 2

L 36958-65

ACCESSION NR: AP5007033

SUBMITTED: 30Dec63

ENCL: 00

SUB CODE: EC,NP

NO REF SOV: 002

OTHER: 000

ATD PRESS: 3224

0

*me*  
Card 2/2

SINAYEV, A. Ya.

All-Union forum of mechanics. Vest. AN Kazakh. SSR 20 no.5:61-63  
My '64 (MIRA 18:1)

MINAYKO, I. A.

MINAYKO, I. A.--"Materials Concerning Clinical Treatment and Laboratory Analysis of Spotted Fever."\*(Dissertation for Degrees in Science and Engineering Defended at USSR Higher Educational Institutions.) Second Moscow State Medical Inst. Inst. I. V. Stalin, Moscow, 1955

SO: Knishnaya Letnitsa. No. 25, 1<sup>st</sup> Jun 1955

\* For Degree of Candidate in Medical Sciences

:SINAYKO, G. <sup>4.</sup>~~A.~~, SAVITSKAYA, YE. P., SHTROV, I. I., YATSIMIRSKAYA, M. K., BILIBIN, A. F.  
and BOCHAROVA, T. V.

"Concerning the Question of the Possibility of a Prolonged Carrying of  
Prowazki's Rickettsiosis." [paper read at an unidentified scientific  
conference held by the institute during the first half of 1955.]  
Proceedings of Inst. Epidem and Microbiol im. Gamaleya 1954-56.

Typhus Division, Krontovskaya, M. K., head., Inst. Epidem and Microbiol  
im. Gamaleya AMS USSR.

SO: Sum 1186, 11 Jan 57.

YATSIMIRSKAYA-KRONTOVSKAYA, M.K.; BILIBIN, A.P.; BOCHAROVA, T.V.; SINAYKO,  
G.A.; SAVITSKAYA, Ye.P.; SHATROV, I.I.

Possibility of prolonged carrying of Rickettsia prowazekii. Zhur.  
mikrobiol.epid. immun. 27 no.7:33-39 Jy '56. (MLRA 9:9)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN  
SSSR, Kliniki infektsionnykh bolezney i kafedry epidemiologii 2-go  
Moskovskogo meditsinskogo instituta imeni Stalina.

(RICKETTSIA PROWAZEKII  
prolonged carriage in animals & men)



ANAN'YEV, V.A., TKACHEV, P.G., POPIK, A.L., SEMENOV, Ye.P. SINAYKO, G.A.,  
LITVAK, Ye.N.

Experiences in the prevention of Botkin's disease with gamma globulin.  
Vop.virus 3 no.3:183-185 My-Je '58 (MIRA 11:7)

1. Institut virusologii imeni AMN SSSR, Moskva i Sanitarny-epidemiologicheskaya stantsiya Kishineva.

(HEPATITIS, INFECTIOUS, prevention & control  
gamma globulin (Rus))

(GAMMA GLOBULIN, therapeutic use  
in prev. of infect. hepatitis (Rus))

SINAYKO, G.A., ANAN'YEV, V.A.

Results of clinical-epidemiological and laboratory study of foci  
of infectious hepatitis for early diagnosis. Sov.zdrav. 17 no.11:37-43  
N°58 (MIRA 11:10)

1. Iz Instituta virusologii imeni D.I. Ivanovskogo (dir.- prof.  
P. N. Kosyakov) AMN SSSR.  
(HEPATITIS, INFECTIOUS, in inf. & child.  
clin. manifest. & laboratory diag. (Rus))



SERGEYEV, N.V., prof.; SINAYKO, G.A., kand.med.nauk

Significance of a method for determining aldolase activity in the  
diagnosis of Botkin's disease. Sov.med. 23 no.9:46-51 S '59.

(MIRA 13:1)

1. Iz kliniki (zav. - prof. N.V. Sergeyev) Instituta virusologii imeni  
D.I. Ivanovskogo (dir. - prof. P.N. Kosyakov) AMN SSSR na baze kliniche-  
skoy infektsionnoy bol'nitsy No.2 (glavnyy vrach A.M. Pyl'tsova).  
(HEPATITIS, INFECTIOUS blood)  
(ALCOLASE blood)

SINAYKO, G.A., kand. med. nauk; GORBUNOVA, T.I., kand. med. nauk

Clinical aspects and laboratory diagnosis of latent and anicteric forms of Botkin's disease in children. *Pediatrics* 37 no.5:56-62 May '59.

(MIRA 12:8)

1. Iz kliniki (zav. - prof. N.V. Sergeyev) Instituta virusologii imeni D. I. Ivanovskogo AMN SSSR (dir. - prof. P.M. Kosyakov) i na baze gorodskoy klinicheskoy bol'nitsy No.2 (glavnyy vrach A.M. Pyl'tsova).

(HEPATITIS, INFECTIOUS, in inf. & child  
clin. aspects & laboratory diag. of latent & anicteric forms (Rus))

SERGEYEV, N.V., prof. [deceased]; SINAYKO, G.A., kand.med.nauk (Moskva)

Change in glutamic-oxalic transaminase activity in Botkin's disease under other conditions. Report No.1. Klin.med. 39 no.3: 35-40 Mr '61. (MIRA 14:3)

1. Iz kliniki (zav. - prof. N.V. Sergeyev [deceased]) Instituta virusologii imeni D.I. Ivanovskogo AMN SSSR (dir. P.N. Kosyakov) na baze Gorodskoy klinicheskoy infektsionnoy bol'nitsy No.2 (glavnyy vrach A.M. Pyl'tsova). (HEPATITIS, INFECTIOUS) (TRANSAMINASE)

SINAYKO, G.A., kand.med.nauk; SHAKHGIL'DYAN, I.V.

Determination of glutamic-oxalic transaminase activity in  
Botkin's disease in children. *Pediatrics* no.5:18-23 '61.  
(MIRA 14:5)

1. Iz kliniki (zav. - prof. I.V. Sergeyev) Instituta viruso-  
logii imeni D.I. Ivanovskogo AMN SSSR (dir. - prof. P.N.  
Kosyakov) na baze Gorodskoy infektsionnoy klinicheskoy bol'nitsy  
No.2 (glavnyy vrach A.M. Pyi'tsova).  
(HEPATITIS, INFECTIOUS) (TRANSAMINASE)

L 6800-65 EWT(1)/EWA(b) Pa-4 JK  
ACCESSION NR: AP4039589

S/0016/64/000/006/0120/0125  
45  
44

AUTHOR: Barinskiy, I. F.; Anan'yev, V. A.; Sinayko, G. A.

TITLE: Serological investigation of virus strains isolated from epidemic hepatitis patients

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 6, 1964, 120-125

TOPIC TAGS: hepatitis (Botkin's disease), isolated hepatitis virus strain, virus strains K<sub>3</sub> and 158-kr, serological investigation, serum neutralization reaction, complement fixation reaction, virus neutralizing antibody, virus specificity, hepatitis convalescence period, serum titration

ABSTRACT: Twelve virus strains were isolated from the blood and feces of epidemic hepatitis patients and an immune serum was developed for each strain by immunizing rats with virus suspensions. The neutralization and complement fixation reactions of the 12 serums showed that 10 of the 12 virus strains were similar in biological and antigenic properties. Two of these similar virus strains (K<sub>3</sub> and

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L 6800-65

ACCESSION NR: AP4039589

158-Kr) were used for seroreaction investigations of serums prepared from epidemic hepatitis patients in different convalescent stages. For complement fixation reactions, the serums were diluted with five parts of a physiological solution (pH 7.0) and heated at 60°C for 30 min. For neutralization reactions, serums were taken from patients with serious hepatitis cases (aldolase level of 30 to 40 units or more, transaminase level of 100 units or more, clinical symptoms and enzyme levels not restored by 4th to 5th week of jaundice) and from patients with light hepatitis cases (aldolase level of less than 30 units, transaminase level of less than 100 units, clinical symptoms and enzyme levels restored by 4th to 5th week of jaundice). Findings show that the titers of virus neutralizing and complement fixing antibodies are low in sera of patients with epidemic hepatitis. Antibodies for the investigated virus strains were generally found in the sera of patients during the fourth month of convalescence or later. Virus neutralizing antibodies were found more often in sera of patients with serious hepatitis cases. In many cases, antibodies for the virus strains under investigation were also found in donor sera and sera from patients with different acute infectious diseases. Experimental results demonstrate the feasibility of investigating

Card 2/3

L 6800-65

ACCESSION NR: AP4039589

virus specificity by serological reactions and the need for  
developing virus research in this direction. Orig. art. has: 7  
tables.

ASSOCIATION: Institut virusologii im. Ivanskogo AMN SSSR (Virusology  
Institute AMN SSSR)

SUBMITTED: 02Aug62

KNCL: 00

SUB CODE: LS

NR REF SOV: 002

OTHER: 001

Card 3/3

CHERNYI, N.I.; LESTERIK, Ye.A.

Clinical and enzymological comparisons in Botkin's disease. 7 p.  
med.virus. no.9:260-267 '64. (MIRA 1P 6)

1. Institut virusologii imeni Ivanovskogo AMN SSSR.

SINAYKO, G.A.; FAKTORIS, Ye.A.; GORBUNOVA, T.I.

Late results of Botkin's disease following corticosteroid therapy.  
Sov. med. 28 no.8:106-111 Ag '65. (MIRA 18:9)

1. Klinicheskiy otdel (nauchnyy rukovoditel' - prof. A.F.Bilibin, zav. - dotsent Ye.S.Ketiladze) Instituta virusologii imeni Ivanovskogo (dir. - prof. V.M.Zhdanov) AMN SSSR na baze 82-y Moskovskoy gorodskoy klinicheskoy infektsionnoy bol'nitsy (glavnyy vrach - kand. med. nauk A.V.Yoremyan).

FARBER, N.A.; SINAYKO, G.A.; KOVREVA, T.S.; MIDRO, O.S.; ANDREYEVA, N.A.

Evaluation of the therapeutic action of diuron in Botkin's disease. Sov. med. 28 no.10:127-131 G '65. (MIRA 18:11)

1. Klinicheskiy otdel (zav.- dotsent Ye.S. Ketiladze, nauchnyy rukovoditel' - prof. A.F. Bilibin) Instituta virusologii imeni Ivanovskogo (dir.- prof. V.M. Zhil'nov) AMN SSSR i Moskovskaya gorodskaya klinicheskaya infektsionnaya bol'nitsa No.82 (glavnyy vrach - kand. med. nauk A.V. Yeremyan), Moskva.

SINAYSKAYA, Vera Alekseyevna; CHERNYSHEVA, Yu., red.; TROYANOVSKAYA, N.,  
tekhn.red.

[Rivers begin their flow as streams] Reki nachinaiutsia s rucheikov.  
Moskva, Gos.izd-vo polit.lit-ry, 1959. 30 p. (MIRA 13:3)  
(Alcoholism)

SINAYSKAYA, Ya. A. (Moskva)

Industrial excursion on the theme "Oxidation and combustion of  
metals." Khim. v shkole. no.2:59-65 Mr-Ap '58. (MIRA 11:3)  
(Oxidation) (Combustion) (Metals)

L 64480-65 ENT(m)/EFF(c)/ENR(j)/I/ENA(c) RPL MM/RM

ACCESSION NR: AP5021281

UR/0020/65/163/1005/1151/1154 42

AUTHORS: Gubanov, E. F.; Sinayskiy, A. G.; Apukhtina, N. P.; Teytel'baum, B. Ya. 44,55 44,55 44,55 36 B

TITLE: On the crystallization and glass transition of polyesterurethane block-copolymers 44,55

SOURCE: AN SSSR. Doklady, v. 163, no. 5, 1965, 1151-1154, and insert facing p. 1152

TOPIC TAGS: polyester, polyurethane, polymer, resin, crystallization, glass transition, block copolymer

ABSTRACT: The glass transition temperature,  $T_g$ , and the effect of crystallization on the latter were determined for block-copolymers

$(-A-OCONHRNHCOO-)_{1-n} (-B-OCONHRNHCOO-)_n$ ,

where A is polyethyleneglycol adipate (I) or polydiethyleneglycoladipate (II), and B is  $[-OC_2H_4OC_6H_4OC_2H_4OCOC_4H_8CO-]_x$ .

Three different isomers of B were studied: para, meta, and ortho, designated in what follows as p-B, m-B, and o-B respectively. The glass transition

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L 64480-65

ACCESSION NR: AP5021281

6

temperature was determined after B. Ya. Teytel'baum and M. P. Dianov (Vysokomolek. soyed., 3, 594, 1961). The experimental results are shown graphically in Figs. 1, 2, and 3. It is concluded that crystallization processes influence the glass transition temperature of block-copolymers. Crystallization of component with lowest Tg lowers the Tg of the block-copolymer. The latter component acts as an internal plasticizer in the crystallization of the higher melting component of the block-copolymer. Orig. art. has: 3 graphs, 4 microphotographs, and 2 equations.

44,55

ASSOCIATION: Institut organicheskoy khimii, Akademii nauk SSSR Kazan' (Institute for Organic Chemistry, Academy of Sciences SSSR); Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva, Leningrad (All-Union Research Institute for Synthetic Rubber)

44,55

SUBMITTED: 12Jan65

ENCL: 03

SJB CODE: OC

MT

NO REF SOV: 005

OTHER: 001

Card 2/5

L 64480-55

ACCESSION NR: AP5021281

ENCLOSURE: 01

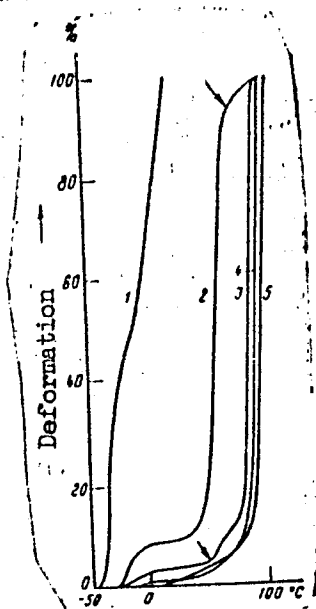


Fig. 1. Thermomechanical curves for the copolymer series II - m - B.

Steady load 16 kg/cm<sup>2</sup>.

1- 0; 2- 30; 3- 60; 4- 80;

5- 100 mole% m - B. Arrows indicate the onset of crystallization during heating.

Card 3/5

L 64480-65

ACCESSION NR: AP5021281

ENCLOSURE: 02

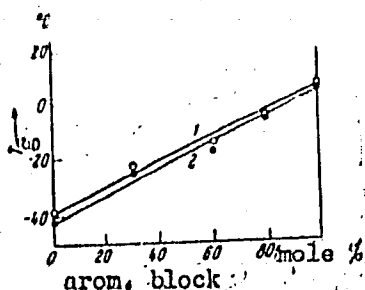


Fig. 2.

Dependence of  $T_g$  on the copolymer composition in the series II - m-B.  
1- amorphous specimens; 2- specimens kept at room temperature for  
6 months

Card 4/5

I. 64480-65

ACCESSION NR: AP5021281

ENCLOSURE: 03

0

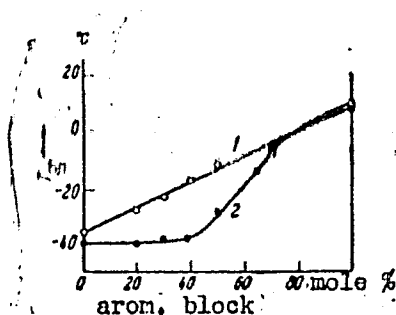


Fig. 3.

Dependence of  $T_g$  on the copolymer composition in the series I - m-B.  
1- amorphous specimens; 2- specimens kept at room temperature for  
6 months

Card 5/5 *slc*

L 06069-67

FILED) WW/AL

SOURCE CODE: UR/0421/56/000/004/0003/0008

ACC NR: AP6030103

AUTHOR: Sinayskiy, E. G. (Moscow); Shakhov, Ye. M. (Moscow)

71  
B

ORG: none

TITLE: Unsteady state diffusion of a magnetic field in a plasma cooled by solid walls

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 4, 1966, 3-8

TOPIC TAGS: plasma diffusion, magnetic field, magnetohydrodynamics

ABSTRACT: The aim of the work was an evaluation of the role of heat conductivity in the diffusion process of a magnetic field in a plasma. The analysis starts with a solution of the linear problem in a cylindrical conductor without taking heat conductivity into account. The problem is solved by the method of integral relationships and by the method of the expansion of the unknown functions in a series; the second method serves to evaluate the accuracy of the first. There follows an analysis of the problem of the cooling of a plasma moving in a tube. An evaluation is made of the maximum permissible time of processes where the cooling does not yet affect the plasma moving in the center of the tube. Finally, the article solves the problem of the diffusion of a magnetic field in a plasma cooled by walls. All the investigations were carried out on the assumption that the processes are one dimensional, that is, the diffusional and thermal layers are assumed to be

Card 1/2

L 06068-67

ACC NR: AP6030103

0  
sufficiently thin with respect to the characteristic linear dimension of the plasma sheaf. The plasma is considered as a solid conductor with a conductivity  $\sigma$  and a heat conductivity coefficient  $\lambda$  calculated by the corresponding formulas for a completely ionized gas. Strictly speaking, the method is valid only for thin thermal and diffusional layers. Orig. art. has: 35 formulas and 2 figures.

SUB CODE: 20/ SUBM DATE: 10Jan66/ ORIG REF: 001/ OTH REF: 001

Card 2/2 *eqk*

Control of the contact process in the manufacture of synthetic rubber. I. A. Livshitz and G. M. Sinalskii. *Soviet Kautchuk* 1950, No. 6, 17-21. A description of the method of taking samples of gaseous products from the contact ovens. Four references. A. Pestoff

ASH 51.4 METALLURGICAL LITERATURE CLASSIFICATION

200 146 S. M. S. M. S. M.

Chem. Synthesis, Theory + Experiment

3013 Determination of aliphatic alcohols by oxidation with potassium dichromate, in presence of certain organic compounds. A. N. Pudovik and G. M. Simanish (J. appl. Chem., USSR, 1948,

82, 862-872).—The oxidation cond.  $A$  (ml. of 0.5%  $K_2Cr_2O_7$ , used under standard conditions for oxidation of the org. compound) is determined for dil. eq. ethyl, propyl, or butyl alcohol, ether, and acetaldehyde, varying the  $H_2SO_4$  concn. of the reaction mixture from 0 to 80%. The val. of  $A$  is const. at all  $H_2SO_4$  concns. for ethyl alcohol and acetaldehyde, but varies characteristically for the other substrates. The composition of certain binary and ternary mixtures is derived from the val. of  $A$  at different selected  $H_2SO_4$  concns. R. T. TRUSON

"Kagan" State Univ.  
Cent. Sci. Res. Lab. Chem. Plants



FD-3365

USSR/Chemistry - Corrosion

Card 1/1            Pub. 50 - 9/20

Authors            : Sinayskiy, G. M., Smirnov, N. P., Raspopova, L. V., Vestel', G. M.,  
                     Krist'yan, M. A.

Title              : The protection of heat exchangers from corrosion caused by water

Periodical        : Khim. prom. No 7, 419-423, Oct-Nov 1955

Abstract          : Found that coating of heat exchanger tubes with bakelite reduced  
                     corrosion considerably and improved the heat transfer coefficient  
                     as compared with that of unprotected tubes that had corroded.  
                     Twelve references, all USSR, 4 since 1940. Two figures, 1 graph,  
                     4 tables.

Institution       : --

Submitted        : --

79-11-4/56

AUTHORS: Sinayskiy, G. E., Ratner, T. V., Makarova, V. P.,  
Gorin, Yu. A., Ivanov, V. S., Alferova, L. V.

TITLE: An Investigation of the Composition of the Hydrocarbons  $C_6$  - the  
By-Products of the Catalytic Synthesis of Divinyl from Alcohol  
(Izucheniye sostava uglevodorodov  $C_6$  - pobochnykh produktov katali-  
ticheskogo sinteza divinila iz spirta).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 2927-2931 (USSR).

ABSTRACT: The investigation of ethyl alcohol in divinyl over a catalyst repre-  
sents a complicated catalytic process which is accompanied by a con-  
siderable amount of side reactions. In spite of the informative pa-  
pers by S. V. Lebedev and Ya. A. Gorin in the field of the catalytic  
formation of the combined dienes ( $C_nH_{2n-2}$ ) from alcohols, their bina-  
ry mixtures, and the mixtures of the alcohols with aldehydes and  
ketones with regard to the by-products, their composition is by far  
not sufficiently investigated. Of the insufficiently investigated  
by-products obtained on rectification of hydrocarbons the so-called  
hexylene-hexadiene fraction (boiling point 60-90°C) is the object of  
the authors' investigation. On further rectification the following  
were obtained beside other by-products. 1) hexadiene-1,3. 2) 3-

Card 1/2

An Investigation of the Composition of the Hydrocarbons  $C_6$  - the 79-11-4/56  
By-Products of the Catalytic Synthesis of Divinyl from Alcohol.

methylopentadiene 1,3. 3) cyclohexadiene-1,3. Thus the presence of the combined dienes. 1) hexadiene-1,3. 2) 3-methylopentadiene-1,3 and 3) cyclohexadiene-1,3 was determined in the hexylene-hexadiene fraction of the hydrocarbons, the by-products of the catalytic synthesis of divinyl from alcohol according to Lebedev, and the way of their formation was partially suggested. There are 12 references, 9 of which are Slavic.

ASSOCIATION: The Laboratory of the Factory SK and the Leningrad State University (Laboratoriya zavoda SK i Leningradskiy gosudarstvennyy universitet).

SUBMITTED: November 23, 1956.

AVAILABLE: Library of Congress.

1. Divinyl-Synthesis
2. Diene syntheses
3. Ethanol-Catalysis
4. Hydrocarbons-Analysis

Card 2/2

AUTHORS: Nepyshnevskiy, V. M., Sinayskiy, G. M. S/064/59/000/08/06/021  
B115/B017

TITLE: Production of Foam Polystyrene by Means of Unsaturated Low-boiling Hydrocarbons

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 8, pp 672-674 (USSR)

ABSTRACT: The aim of the investigation made by A. A. Berlin (Ref 1) was the development of a technological process for the production of foam polystyrene as an insulating and building material for radio engineering without using pressure. At present, two main processes are known for the production of foam polystyrene. In the first method foam formers which decompose at increased temperatures (e.g. dinitrile of azodiisobutyric acid and ammonium carbonate) are used, and in the second method (Refs 1,2) polystyrene is saturated with gases or easily volatile solvents. Polystyrene saturated with these products is foamed in perforated molds by heating to 100°. The applicability of the fractions C<sub>4</sub>, C<sub>5</sub> and C<sub>6</sub> of stable gasoline as saturation substances and of various methods for the production of polystyrene saturated with saturated easily volatile hydrocarbons is investigated. The method of saturating emulsified polystyrene with butane proved to be the most convenient. Emulsified poly-

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S/138/62/000/002/001/009

AC51/A126

15.9201

AUTHORS: Litvin, Yu.A.; Nepyshnevskiy, V.M.; Sinayskiy, G.M.

TITLE: Viscosity change of the reacting mass in isoprene polymerization

PERIODICAL: Kauchuk i rezina, no. 2, 1962, 1 - 4

TEXT: Results of an investigation on the viscosity change of the reacting mass during isoprene rubber synthesis are submitted. The change is studied with respect to the duration of polymerization, polymer content, isoprene supply conditions and temperature. The isoprene polymerization was carried out in 3-liter autoclaves made of 1X9T18H (1Kh9T18N) steel, with anchor type mixers. The molecular weight of the polymer was determined according to the viscosimetric method and calculated from the formula:  $M = 5 + 1.162 h$ , where  $h$  is the characteristic viscosity. The PB-2 (RV-2) rotational viscosimeter was used for continuous measurement of the viscosity. The viscosity of the ПН-6 (PN-6) calibrating liquid was measured with a Kepler rheoviscosimeter. Experiments showed that one of the main factors determining the absolute viscosity of the reacting mass is the concentration of the monomer. The absolute viscosity does not exceed 30 - 40 poise and coincides with the viscosities of solutions in the

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Viscosity change of the reacting mass in ....

same concentrations of natural rubber and stabilized synthetic isoprene rubber, with a polymer content in the reacting mass of up to 6 - 17% by weight. With further concentration of the polymer, the viscosity of the reacting mass sharply increases, reaching values exceeding 1,000 poise at 20% by weight. The concentration dependence of the viscosity of the synthetic isoprene and natural rubber solutions is the same within the range of up to 20%. For concentrations of the synthetic isoprene rubber solutions in n-heptane of 10, 15 and 20%, the viscosity in the temperature interval  $-5 + + 45^{\circ}\text{C}$  decreases by a factor of 2 - 2.3. There are 7 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The reference to the most recent English-language publication reads as follows: C.T. Winchester, Natsyn Pilot Plant Ind. a. Eng. Chem 51, no. 2, 97 (1959). ✓

ASSOCIATION: Voronezhskiy filial vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskogo kauchuka (Voronezh Branch of the All-Union Scientific Research Institute of Synthetic Rubber)

Card 2/2

Воспользовавшись обобщенными сведениями по атомно-энергетическому производству в Великобритании и Франции, автором составлен перечень предприятий и организаций, занимающихся разработкой и производством электроприборов в промышленности СССР.

Издательство «Энергия», Москва, 1979

**Elektroprirod i avtomatizatsiya promyshlennyykh ustadoyok**; trudy sovetskikh nauchnykh i tekhnicheskikh institutov, seriya "Prikladnaya mekhanika". Moscow, Gosenergoizdat, 1960. 470 p., 11,000 copies printed.

General Eds.: I.I. Petrov, A.A. Sitovskii, and M.G. Chilikin; Eds.: I.I. Sud, and I.P. Mikhaylov; Tech. Eds.: E.P. Voronin, and O.G. Larionov.

**PURPOSE:** The collection of reports is intended for the scientific and technical personnel of scientific research institutions, plants and schools of higher education.

[illegible]

GENERAL PROBLEMS CONCERNING THE THEORY AND PRACTICE OF ELECTRIC DRIVE AND AUTOMATION OF CONTROL

**Patel, K.M.,** and **I.M. Baidya, Engineers.** Electronic Excitation Systems of Blooming Hill Main Drive at Alibabadi, Champoretilly and Ballaguly (Alibabadi (at Varanashik), Champoretilly, and Ballaguly (Toda)) Metallurgical Plants.

Plaskey, V.I., Docent. Utilization of Gas-Tube Converters for Reversing Electric Drives

Finally, M.P., Doctor, Candidate of Technical Sciences. Electronic Ex  
citation of Reversing Mill Drives

Dynaluk D.H. and G.T. Sinaruk, Engineers. "Rough Regulation System for Sheet Thickness of a Continuous High-Speed Cold-Rolling Mill"

Chernom, Ya. I., Candidate of Technical Sciences. Automatic Stop Systems of the Cold-Rolling Reversing Mill 1200<sup>00</sup>

Afanas'yev, V. J., Candidate of Technical Sciences. Electric Drives of Flying Shafts

**Domatitskiy, S.M.** Candidate of Technical Sciences. **Problem of Designing Optimum Control Systems for Flying Shears**

Alitalia, Inc., Engineer. Electric Drive of a Cold-Rolling Mill Reel with an Automatic Tension Regulator

Myerson, S.S., Candidate of Technical Sciences. Stabilizing Devices of Tolling Mill Electric Drives With Magnetic Amplifiers

Chelnyukhin, A.B.: Candidate of Technical Sciences. Roughing Shop Automation with the Use of a Control Computer

Sooyul Ahn, J.D., P.E., Engineer. Automatic Control of Rolling at Reversing Mills  
With the Use of Computers

**Chilton, E. P.** Engineer. Automation of Hull 900 at the Ball-Springburn Ship of the Blaine Reg'd. City Metallurgical Research Institute (Bismuth Reg'd Metallurgical Combine)

DRALYUK, B.N.; SIMAYSKIY, G.V.

Sheet thickness control during rolling with special relay characteristic  
and return unit. Prokat. proizv. no.2:51-61 '60.

(MIRA 14:11)

(Rolling(Metalwork))  
(Automatic control)  
(Thickness measurement)



SINAYSKIY, G.V.

Electromagnetic coupling for connecting a selsyn to a machine.  
Prokat. proizv. no.2:92..94 '60. (MIRA 14:11)  
(Rolling mills)  
(Remote control)

BULAYEV, V.G.; SINAYSKIY, G.V.

Improving the characteristics of the ELK-3M command-type  
"flying" micrometer. Prokat. proizv. no.2:95-102 '60.  
(MIRA 14:11)

(Thickness measurement)  
(Rolling(Metalwork))

DRALYUK, B.N.; SINAYSKIY, G.V.

Selsyn-type turning angle transducer. Prokat. proizv. no.2:103-  
110 '60. (MIRA 14:11)

(Rolling(Metalwork))  
(Transducers)

PHASE I BOOK EXPLOITATION      SOV/5817

Dralyuk, Boris Naumovich, and German Vladimirovich Sinayskiy

Regulyator tolshchiny polosy na nepreryvnom stane kholodnoy prokatki (Strip Gage Controller on the Continuous Cold-Reduction Mill) Sverdlovsk, Metallurgizdat, 1961. 76 p. 3150 copies printed.

Reviewer: S. A. Vorob'yev; Ed. of Publishing House: M. M. Syrchina; Tech. Ed.: Ye. D. Turkina.

PURPOSE: This booklet is intended for technical personnel concerned with the automatic control of manufacturing processes.

COVERAGE: Problems involved in building up a control system for the gaging of strip on a continuous cold-reduction mill are discussed. The constructional elements of a gage controller on the entry side of a continuous high-speed mill are examined in detail, and the performance of this controller during mill

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Strip Gage Controller (Cont.)

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operation is analyzed. Engineers Yu. A. Mishin, L. G. Vinogradov, and S. I. Vinogradova participated in this investigation. B. N. Dralyuk wrote Ch. 1, 2, and 6; G. V. Sinayskiy wrote Ch. 3, 4, and 5, and made all the diagrams. The evaluation of the oscillograms used in Ch. 6 was made by S. I. Vinogradova. The authors thank the reviewers S. A. Vorob' yev and I. N. Pechorina. There are 28 references: 16 Soviet, and 12 English.

TABLE OF CONTENTS:

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Ch. 1 Principles of Building Up a Strip-Thickness Control System on a Continuous Cold-Reduction Mill	5
1. Alternatives of building up the whole control system all over the mill	5
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USSR/Electricity  
Cranes, Electric  
Drives, Electric

Apr 49

"Review of A. G. Mekler's 'Electric Drive for Crane Machinery,'" Dr. I. I. Petrov, Cand Tech Sci, Head of Chair of Elec Drive, All-Union Power Eng Corr Inst, V. I. Petrov, Cand Tech Sci, Moscow Higher Tech School Izeni Bauman, Dr. L. B. Geyler, Cand Tech Sci, Sr Sci Collaborator (TSNIIA), M. M. Sinayskiy, Chief Engr, "Dynamo" Factory Izeni Kirov, Ye. A. Leybovich, "Dynamo" Factory Izeni Kirov, 2 pp

"Elektrichestvo" No 4

Highly critical review of subject book. Author did not test a single crane motor, either in laboratory or in industry. All of his calculations (most of which were erroneous) were for models. Concludes that publishing house made a mistake in publishing book.

PA 39/40729

SINAYSKIY, M.M.; YEZERSKIY, M.Ye.; redaktor: SEMENOVA, M.N., redaktor;  
VOLKOVA, Ye., tekhnicheskiy redaktor.

[Controllers for alternating current electric motor cranes; manual  
on the choice of controllers, their installation and maintenance]  
Kontrollery dlia kranovykh elektrodvigatelei peremennogo toka; ru-  
kovodstvo po vyboru kontrollerov, montazhu i ukhodu za nimi. Mo-  
skva, Gos. izd-vo vodnogo transporta, 1954. 127 p. (MLRA 8:1)  
(Electric cranes) (Electric controllers)

SINAYSKIY, Mikhail Mikhaylovich; MOYZHES, S.M., redaktor; LARIONOV, G.Ye.,  
tekhnicheskiy redaktor

[Electric drive for gates in hydraulic apparatus] Elektricheski  
prived zatvorov gidrosoruzhenii. Moskva, Gos. energ. izd-vo,  
1956. 198 p. (MLRA 10:1)  
(Gates, Hydraulic)



SINAYSKIY, M.M., inzhener.

Using motors with two-way feed for driving hydraulic gates. Elektrichesvo no.5:5-9 My '56. (MLBA 9:8)

1. Zavod "Dinamo" imeni Kirova.  
(Electric driving)

SINAYSKIY, M.M., inzhener.

Heating of asynchronous motors during short and intermittent runs. Vest.elektrom. 27 no.1:50-55 Ja '56. (MLRA 9:6)

1.Zaved "Dinamo" imeni S.M.Kirova.  
(Electric motors, Induction)

KOMAR, Marina Anatol'yevna; SINAYSKIY, M.M., red.; LARIONOV, G.Ye., tekhn. red.

[Principles of electric drive and control equipment] Osnovy  
elektroprivoda i apparatura upravleniya. Moskva, Gos.energ.izd-vo,  
1957. 350 p. (MIRA 11:1)  
(Electric driving) (Electric controllers)

105-9-31/32

AUTHORS: Uspenskiy, B.S., Dotsent, Krichevskiy, A.S., Engineer,  
Berlin, I.A., Engineer

TITLE: Review of the Book by M.M.Sinayskiy "Electrical Drive of Stop  
Sluices for Waterworks" (Bibliografiya: M.M.Sinayskiy  
"Elektricheskiy privod zatvorov gidrosooruzheniy")

PERIODICAL: Elektrichestvo, 1957, Nr 9, pp. 91-92 (USSR)

ABSTRACT: Published by Gosenergoizdat, 200 pages, price Roubles 6,75.  
Sinayskiy is a leading specialist in this domain. Most of the  
stop sluices in the USSR were built under his supervision. The  
book consists of XIII chapters, it is short and precisely written;  
formulation is distinct and clear.  
1. Chapter: General evaluation of the peculiarities of electrical  
drive. 2. Chapter: Determination of the load of electromotors.  
3. Chapter: Mechanical properties. 4. Chapter: General methods  
for the construction of the natural and rheostat characteristics  
of three-phase motors. 5. Chapter: Thermal calculations of  
electromotors. 6. Chapter: Characteristic schemes of the power  
circuits and the basic nodes of control power circuit schemes.  
7. Chapter: Methods for the determination of the amount of start-  
ing- and regulation resistances and of the selection of normal  
resistance cases according to computation data. 8. Chapter:  
Electrical safety devices. 9. Chapter: Basic technical data on

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SINAYSKIY, M.M., inzh.

Electric drive for hydroelectric equipment. Vest. elektroprom. 28  
no.11:76-77 N '57. (MIRA 10:12)

1. Zavod "Dinamo."  
(Electric drive) (Hydraulic machinery)

BATALOV, Nikolay Mikhaylovich; BMLEY, Balentin Antonovich; IOFFE, Aleksandr Borisovich; RABINOVICH, Aron Abramovich; SINAYSKIY, Mikhail Mikhaylovich; IVANOV, V.M., red.; VORONIN, K.P., tekhn.red.

[Electric motors for cranes and metallurgical plants; theory, construction, use] Kranovo-metallurgicheskie elektrodvigateli; teoriya, konstruktsiya, primeneniye. Pod obshchey red. A.A.Rabinovicha. Moskva, Gos. energ. izd-vo, 1958. 168 p. (MIRA 11:5)  
(Electric motors)

105-~~48~~-3-4/31

AUTHOR: Sinayskiy, M. M.

TITLE: The Effect of Voltage Fluctuations on the Operation of an Alternating Current Crane Motor ( Vliyaniye kolebaniy napryazheniya na rabotu kranovogo dvigatelya peremennogo toka)

PERIODICAL: Elektrichestvo, 1958, Nr 3, pp. 19- 22 (USSR)

ABSTRACT: Here it is tried to give a technical reasoning for the selection of the admissible voltage fluctuation limits in the feeding of crane motors, beginning with the analysis of their voltage dependence of mechanical and thermal characteristics. The analysis is applied here to the motors of the series MT, can, however, also be used for other induction motors with other quantitative conditions. The effect of the voltage fluctuation on the following motor operation characteristics is investigated: 1) The adjusted rotation speed at given load; 2) The maximum moment; 3) The energy losses, and therefore also on the heating of the motor. Comprisingly, the following is said: In planning drives with crane motors one should not formally stick to the

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1:5-58-3-4/31

The Effect of Voltage Fluctuations on the Operation of an Alternating Current Crane Motor

amount of the admissible voltage fluctuation of  $\pm 5\%$  of the nominal value. In many cases the taking into account of the concrete working conditions in the motor admits the extension of these limits and the relieving of the power supply at the cost of a greater voltage drop. In special the limitation of the voltage drop is not determined by the motor, but by the steering device in normal cranes where in the selection of the motor the heat conservation is the decisive element, whereas the pull-out torque is not exploited by far. Under all circumstances the voltage drop is not to surpass  $15\%$  in the case of a possible maximum circuit load, since otherwise an exact operation of the steering device is not guaranteed. There are 4 figures.

ASSOCIATION: Zavod "Dinamo" im. Kirova ("Dinamo" Works imeni Kirov)

SUBMITTED: June 22, 1957

Card 2/2



RUBINSKIY, Ivan Aleksandrovich; SINAYSKIY, M.M., red.; BORUNOV, N.I.,  
tekhn.red.

[Electromagnetic alternating current contactors for cranes;  
manual for installation, regulation, and maintenance] Kranovye  
elektromagnitnye kontaktory peremennogo toka; rukovodstvo po  
ustanovke, regulirovaniu i ukhodu. Moskva, Gos.energ.izd-vo,  
1959. 23 p. (Kranovoe elektrooborudovanie, no.3)

(MIRA 12:11)

(Electric contactors)

(Cranes, derricks, etc.)

SINAYSKIY, Mikhail Mikhaylovich; TIMOKHINA, V.I., red.; VORONIN, K.P.,  
~~Volkhovskiy, V.I.~~

[Controls for alternating current electric motors in cranes;  
manual for installation, maintenance, and repair] Kontrollery  
dlya kranovykh elektrodvigatelei peremennogo toka; rukovodstvo  
po ustanovke, ukhodu i remontu. Moskva, Gos. energ. izd-vo, 1959.  
48 p. (Kranovoe elektrooborudovanie, no.2) (MIRA 12:11)  
(Electric controllers) (Cranes, derricks, etc.)

PETRAKOVSKIY, Viktor Mikhaylovich; SINAYSKIY, M.M., red.; BCRUNOV,  
M.I., tekhn.red.

[Alternating current electric crane motors; manual on  
installation, maintenance, and repair] Kranovye elektro-  
dvigateli peremennogo toka; rukovodstvo po ustanovke,  
ukhodu i remontu. Moskva, Gos.energ.izd-vo, 1959. 64 p.  
(Kranovoe elektrooborudovanie, no.1) (MIRA 12:6)  
(Cranes, derricks, etc.) (Electric motors, Alternating current)

SINAYSKIY, M., inzh.

New drive systems for tower cranes used in construction. Na stroi.  
Mosk. 2 no.7:6-9 J1 '59. (MIRA 12:16)  
(Cranes, derricks, e.c.--Electric driving)